

MUREP Precollege Summer Institute (MUREP PSI) Awards – FY2023

Title: The NASA-UVI Pre-College Engineering Summer Institute

Institution: University of The Virgin Islands

City/State: Charlotte Amalie, Virgin Islands

PI: David C Morris

FY: 2023

Summary:

The University of the Virgin Islands (UVI) is a historically black college (HBCU) with campuses on St. Thomas and St. Croix in the US Virgin Islands (USVI) with a 2022 enrollment of 1376 (905 fulltime) students. UVI has experienced unprecedented growth over the past 20 years in enrollment in math, computer, and physical sciences. Through past NASA MUREP support, UVI has created the Physics Degree with concentrations in astronomy (2016) and engineering (2022). UVI faculty and students are involved in many NASA-related, grant-funded research projects. Some 90% of UVI physics and pre-engineering students work with UVI faculty and scientists on projects supported through physics research grants. Students are attracted to hands-on engineering projects including upgrades and maintenance of the Virgin Islands Robotic Telescope (VIRT) at the Etelman Observatory (EO), and infrastructure resilience projects in the UVI Caribbean Green Technology Center (CGTC). Despite many successes in program development over the past 20 years, UVI has experienced recent declines in enrollment due to the impacts of and recovery from hurricanes in 2017 and from the COVID19 pandemic in 2020. UVI has a history of success, however, in recruiting into the College of Science and Mathematics through pre-college summer activities in the past. Through this NASA Pre-College Summer Institute, we will build on past experience and success to develop a new pre-college summer recruitment activity that will help address the current enrollment challenges while also preparing students for greater success in their UVI career and future employment. This will simultaneously help to address UVI's current enrollment challenges, the USVI critical need for a highly trained technical workforce, and NASA's goal to diversify its future workforce.

The UVI PESI will enroll a minimum of 20 students from grades 9-11 from the public high schools on St. Thomas and St. Croix to participate in a 1-week summer residential experience on-campus at UVI. Students will be exposed to the fundamentals of scientific and engineering methods, they will engage in discussions about career paths and the STEM career landscape, they will make contacts to STEM professionals in the USVI and at NASA, and they will engage in professional development activities designed to help them prepare for a successful transition to college. These activities will all take place on UVIs campus, through engagements with UVI faculty, researchers, and current STEM students, helping to build students sense of identity as a science student and future STEM professional and helping to build their sense of belonging to the UVI community. We will encourage students to participate in the PESI activity in subsequent years (up to a maximum of three years) to steadily develop their sense of belonging to the STEM and UVI communities and to help grow their persistence and resilience.

During the first year of our program, we will recruit students from both St. Thomas and St. Croix (ten students from each island) but we will host the activity on the UVI St. Thomas campus, staffed by St. Thomas faculty and students, and engaging with St. Thomas STEM professionals. In year 2, we will rotate the host-site to the UVI St. Croix campus. In subsequent years, we will alternate host sites between St. Thomas and St. Croix.